

REMARKS

Claims 1-7, 10, and 13-14 are pending in the application after entry of this amendment. Claims 1 and 13 have been amended. Claims 8-9, 11-12, and 15 have been cancelled. Support for the amendments can be found in the originally filed claims and in the specification of the application.

REJECTION UNDER 35 U.S.C. §101

The Office Action has rejected Claim 12 under 35 U.S.C. §101, as allegedly being directed to non-statutory subject matter. Claim 12 has been canceled. Thus, this rejection should be withdrawn.

REJECTION UNDER 35 U.S.C. §102

The Office Action has rejected Claims 1-11 and 13-15 under 35 U.S.C. §102(a), as allegedly being anticipated by WO 2003/066699A1 to Helland et al. (hereinafter “Helland”). Applicants respectfully disagree for the following reasons.

As an initial matter, Applicants note that Helland was published on August 14, 2003. The present application is a national phase application of PCT /EP2004/007033, filed on June 29, 2004, which claims priority to Great Britain patent application 0315275.8, filed on June 30, 2003. Thus, the publication of Helland occurred after the invention of the subject matter of the present application.

Helland is directed to the formation of a polymer film. Specifically, Helland is directed to the formation of a self-supporting film. In contrast, the claims of the present application are directed to an extrusion coated substrate. Helland fails to disclose an extrusion coated substrate as recited in amended claim 1.

Extrusion coating is the coating of a molten resin onto a substrate material, typically a solid surface such as paper, cardboard, paper, or a polymer film. Extrusion coating typically involves extruding the resin from a slot die at high temperature directly onto a moving substrate which is then passed through a nip consisting of a rubber covered pressure roller and chrome plated cooling roll. The roll cools the molten extrusion coating back into the solid state and imparts the desired finish to the surface of the substrate.

In the present application, certain features of claim 11, namely a substrate of paper, cardboard, or aluminum foil, have been incorporated into claim 1. Such substrates are not capable

of being extruded. Thus, claim 1, as amended, is not intended to cover a co-extruded film. Helland fails to disclose a coating on a substrate as described in amended claim 1.

In addition, the features of claim 9, specifically that the coating comprises LDPE and wherein LDPE forms from 15 to 35 wt.% of the coating, have been incorporated into claim 1. While Helland discloses the presence of additional polymers, there is no disclosure of this range of LDPE. Specifically, Helland discloses that the bimodal ethylene polymer “may be blended with other polymers while retaining sealing and mechanical properties suitable for the desired end-uses of the polymer film.” (Helland, page 11, lines 8-11). Helland further discloses that such polymers can constitute up to about 50 wt.% of the overall polymer, but with respect to HDPE, MDPE, or LLDPE. Helland utilizes LDPE as an optical clarifier and discloses a suitable concentration range of LDPE as “up to 5 wt.%” (page 11, line 27). It should be appreciated that higher concentrations of LDPE can be detrimental to the mechanical properties of the resulting self-supporting film of Helland. The remaining portions of the specification, including the Examples, of Helland similarly describe the use of LDPE, if at all, in concentrations up to 5 wt.%.

The coatings of the present application are not self-supporting as they are coated onto a substrate. Thus, the mechanical properties of such coatings are not as important as may be required for self-supported coatings, such as those in Helland. In contrast, the sealing strength and ability to extrude at high line speeds are of more interest for the coating materials of the present application.

Applicants maintain that the addition of greater than 15 wt.% LDPE into the polymer films of Helland would adversely affect the mechanical properties of the resulting film, rendering the film unsuitable for use in desired applications such as food packaging.

Applicants also note the processability of the extrusion coated substrates of the present application with high line speeds (e.g., greater than 500 m/min) and high extruder rpm (indicating high throughput), as described in Examples 5, 11, 13, and 14. Moreover, in Examples 8, 10, and 11, the significance of varying amounts of LDPE are described. With no LDPE (Example 8), the resulting material was unable to achieve a line speed of 500 m/min. With 13 wt.% LDPE (Example 10), such a line speed was achievable. With 24 wt.% LDPE, the line speed was improved and the resulting coating had the lowest coating weight variation, suggesting a more homogeneous coating. Thus, increasing the LDPE content can, in various aspects, provide for higher line speeds, higher extruder rpm, and narrow coating weight (i.e., less variation in coating thickness). The increased

line speed of the process described in the present application (e.g., about 500 m/min or more) is not typically achievable on a film process line.

In addition, the increased line speed of the present invention can be achieved with higher melt flow rate polymers. Claim 1, as amended, recites an MFR₂ of 5 to 25 g/10 min. In contrast, Helland describes films having lower MFR₂ values (e.g., 0.3 to 5 g/10min) that are more typical of self-supporting films. For high speed lines, such as those described for the present invention, the required higher melt flow value can be detrimental to a resulting film's properties.

In summary, Helland fails to disclose an extrusion coated substrate as recited in amended claim 1, wherein LDPE comprises from about 15 to 35 wt.% of the coating. Thus, this rejection should be withdrawn.

CONCLUSION

Consideration of the remarks and entry of the amendments presented herein is requested. The Office is invited to contact the undersigned to discuss any issues that will expedite prosecution of the above-identified application.

A credit card payment is submitted via EFS Web in the amount of \$490.00, representing the fee for a two-month extension of time for a large entity under 37 C.F.R. § 1.17(a)(2); however, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0629.

Respectfully submitted,

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